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EXAMINER

NGUYEN, HAI V

ART UNIT

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2618

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/567,317	<b>Applicant(s)</b> JONES ET AL.	
	<b>Examiner</b> HAI V. NGUYEN	<b>Art Unit</b> 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18 and 26-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18 and 26-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 06/30/2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

1. This Office Action is in response to the communication received on 30 June 2008.
2. Claims 17, 19-25 are cancelled.
3. Claims 1-16, 18, 26-41 are presented for examination.

***Response to Arguments***

4. Applicant's arguments with respect to claims 1, 2, 4, 10, 11, 13, 34, 36, 37, 39, 40, 41 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-2, 10-11, 26-27, 34-37, and 40-41 are rejected under 35 U.S.C. 102(e) as being anticipated by **Hong** US patent # **6,999,634**.

7. As to claim 1, Hong discloses substantially the invention as claimed, including a method for noise variance estimation of a detected signal, the method comprising:

(Figure 3, element 500) receiving a signal (Figure 3, element  $(\sigma^2_f, \sigma^2_n)$ ) and

producing therefrom in a detector a detected signal (Figure 3, element  $f_s(t)$ );

(Figure 3, element 500) producing from the received signal a first noise variance signal

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representative (*Figure 3, element  $\mu_{\tau}$* ) of noise variance in the received signal; and (*Figure 3, element 500*) producing from the detected signal and the first noise variance signal a second noise variance signal representative (*Figure 3, element  $f_o(t)$* ) of noise variance estimation in the received signal.

8. As to claim 2, Hong discloses, wherein the producing the second noise variance signal comprises applying a function equal to a transfer function of the detector to the first noise variance signal (*Figure 3, element  $f_o(t)$ , see equation 12, col. 6, lines 40-55*).

9. Claim 10 corresponds to the apparatus claim of method claim 1; therefore, it is rejected under the same rationale as in claim 1 above.

10. Claim 11 has similar limitation of claim 2; therefore, it is rejected under the same rationale as in claim 2 above.

11. Claim 26 corresponds to the apparatus claim of method claim 1; therefore, it is rejected under the same rationale as in claim 1 above.

12. Claim 27 has similar limitation of claim 2; therefore, it is rejected under the same rationale as in claim 2 above.

13. Claim 34 corresponds to the apparatus claim of method claim 1; therefore, it is rejected under the same rationale as in claim 1 above.

14. Claim 35 corresponds to the apparatus claim of method claim 1; therefore, it is rejected under the same rationale as in claim 1 above.

15. Claim 36 corresponds to the computer readable medium claim of method claim 1; therefore, it is rejected under the same rationale as in claim 1 above.

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16. Claim 37 has similar limitation of claim 2; therefore, it is rejected under the same rationale as in claim 2 above.

17. Claim 40 corresponds to the system claim of method claim 1; therefore, it is rejected under the same rationale as in claim 1 above.

18. Claim 41 corresponds to the circuit claim of method claim 1; therefore, it is rejected under the same rationale as in claim 1 above.

***Claim Rejections - 35 USC § 103***

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Hong** as applied to claim 1 above, and further in view of **Hwang** et al. US patent # **7,440,524 B2**.

21. As to claim 3, Hong does not explicitly disclose, wherein the producing the first noise variance signal comprises deriving the first noise variance signal from a midamble portion of the received signal.

22. Hwang discloses, wherein the producing the first noise variance signal comprises deriving the first noise variance signal from a midamble portion of the received signal (*Hwang, col. 5, lines 4-25*).

23. Accordingly, it would have been obvious to one of ordinary skill in the internetworking art at the time the invention was made to have incorporated Hwang's teachings of deriving the first noise variance signal from a midamble portion of the

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received signal (*col. 5, lines 4-25*) with the teachings of Hong, for the purpose of *improving the SNR for the CIR estimate (col. 5, lines 20-25)*.

24. Claims 12, 28, 38 have similar limitation of claim 3; therefore, it is rejected under the same rationale as in claim 3 above.

25. Claims 4-9, 13-16, 18, 29-33, 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Hong-Hwang** as applied to claims 1, 3 above, and further in view of **Zhengdi et al. US patent # 6,956,888 B2**.

26. As to claim 4, Hong-Hwang does not explicitly discloses producing from the second noise variance signal and an estimate of total power at the detector output a signal-to-interference ratio (SIR) signal representative of SIR in the received signal.

Zhengdi discloses in Figure 4 that "producing from the second noise variance signal (*Figure 4, estimate signal u*) and an estimate of total power at the detector output (*Figure 4, signal samples x*) a signal-to-interference ratio (SIR) signal representative (*Figure 4, noise variance  $\sigma^2$* ) of SIR in the received signal".

Accordingly, it would have been obvious to one of ordinary skill in the internetworking art at the time the invention was made to have incorporated Hong-Hwang's teachings with the teachings of Zhengdi, for the purpose of *improving channel estimation using estimated data symbols (Zhengdi, col. 1, lines 60-75)*.

27. As to claim 5, Hong-Hwang-Zhengdi discloses, wherein the detector is a CDMA multi-user detector (*Zhengdi, Figures 1, 2*).

28. As to claim 6, Hong-Hwang-Zhengdi discloses, wherein the detector is a CDMA single-user detector (*Zhengdi, Figures 1, 2, 4*).

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29. As to claim 7, Hong-Hwang-Zhengdi discloses, wherein the detector comprises a CDMA RAKE receiver (*Zhengdi, Figures 1, 2, 4, element 36*).

30. As to claim 8, Hong-Hwang-Zhengdi discloses, wherein the received signal is a wireless signal (*Zhengdi, Figures 1, 2, 4*).

31. As to claim 9, Hong-Hwang-Zhengdi discloses, wherein the wireless signal is a UMTS air interface signal (*Hwang, [0004]*).

32. Claims 12, 28, 38 have similar limitation of claim 3; therefore, it is rejected under the same rationale as in claim 3 above.

33. Claims 13-16, 18 have similar limitations of claims 4-7, 9; therefore, they are rejected under the same rationale as in claims 4-7, 9 above.

34. Claims 29-33 have similar limitations of claims 4-7, 9; therefore, they are rejected under the same rationale as in claims 4-7, 9 above.

35. Claim 39 has similar limitation of claim 4; therefore, it is rejected under the same rationale as in claim 4 above.

36. Further references of interest are cited on Form PTO-892 which is an attachment to this action.

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### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HAI V. NGUYEN whose telephone number is (571)272-3901. The examiner can normally be reached on 6:00-3:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc M. Nguyen can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hai V. Nguyen/  
Examiner, Art Unit 2618